

ABSTRACT

A method and apparatus are disclosed for aligning and maintaining the alignment of the transmitting unit and the receiving unit in an optical wireless communication system. The receiving unit includes an optical bundle positioned at the focal point of an objective optic element. The optical bundle is comprised of an array of optical fibers, arranged surrounding the receiving fiber. The receiving unit also includes a number of detectors that measure the optical signal strength on a corresponding fiber in the optical bundle. The array of fibers is used to detect the location of the received signal relative to the receiving optical fiber and to provide feedback to adjust the orientation of the optical bundle to optimize the received signal strength. When misalignment occurs between the received signal and the receiving fiber, some of the incident received signal will be captured by one or more of the outer optical fibers. The amplitude of each of the generated signals are then compared to each other, thereby giving a direction in which to drive the optical bundle back into alignment with the received signal. The present invention provides automatic tracking using the information-carrying optical signal, without the need for a separate laser.

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